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10/033,362	12/27/2001	Yusaku Katoh	01848/LH	7805

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EXAMINER

MAKI, STEVEN D

ART UNIT

PAPER NUMBER

1733

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/033,362

Applicant(s)

KATOH ET AL.

Examiner

Steven D. Maki

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 05 June 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- ☐ Interview Summary (PTO-413) Paper No(s) _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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1) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2) **Claims 13, 14, 16, 18, 20, 30, 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haydon (WO 96/05917) in view of Long et al (US 4226273) and Chandler et al (WO 97/18959) and optionally further in view of at least one of Hoppenheit et al (US 5579818), Japan '410 (JP 2000-254410) and Binsfeld (US 6298890).**

Haydon discloses a **non-pneumatic cushion tire** comprising an annular body formed from elastomeric material. The annular body has a tread formation for gripping engagement with the ground surface. As can be seen from figure 3, the tread configuration comprises **axial tread grooves** separating shoulder tread elements on each side of the tire wherein (a) the axial grooves on one side of the tire are circumferentially offset from the axial grooves on the other side of the tire and (b) the axial grooves on one side of the tire are connected to the axial grooves on the other side of the tire by narrow grooves crossing the equatorial plane of the tire. The narrow grooves are inclined alternately in one direction and an opposite direction so as to define a zig-zag path. **Cavities (holes) 25** are formed in the annular body for enhancing resilience of the body and providing ventilation for assisting in heat dissipation. See figure 3, page 5 lines 25-26 and page 16 lines 15-16. The cavities are configured to inhibit formation of zones which generate stress. The annular body

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incorporates suitable **reinforcement** (not shown in figure 3). See page 13 lines 26-27. In figures 21 and 22 (each being a different embodiment than figure 3), Haydon shows reinforcing strands 72 in an inner portion of a non-pneumatic tire. In figure 32 (a different embodiment than the figure 3 embodiment), Haydon shows reinforcement means 107 in an inner layer (base layer) of a non-pneumatic tire wherein the reinforcement means provides the inner layer with a greater stiffness to facilitate gripping of the tire on the rim. Haydon does not recite circumferentially oriented reinforcing core materials embedded in a base rubber layer at even intervals of 10 mm or less.

As to claim 13, it would have been obvious to one of ordinary skill in the art to provide Haydon's non-pneumatic tire with a base layer having reinforcing core materials embedded therein at even intervals of 10 mm or less since (a) Haydon suggests incorporating **reinforcement** in a base portion / layer of the non-pneumatic tire to provide the base portion / layer with increased stiffness *to facilitate gripping of the tire on the rim*, (b) Long et al, which like Haydon teaches a non-pneumatic tire having cavities, suggests including a multitude of relatively closely spaced circumferentially oriented **cords (reinforcement)** 29 in a base layer of a non-pneumatic tire *for holding the tire on the rim* and optionally (c) Hoppenheit et al, which teaches using circumferentially oriented reinforcement in a base layer of a non-pneumatic tire *to ensure a secure seat of the tire on the rim*, suggests arranging the circumferentially oriented **reinforcement** such that the reinforcement member spacing is less than 20 mm.

The limitation of the non-pneumatic tire having an aspect ratio of 15-80% would have been obvious since (a) Haydon suggests using a "low aspect ratio" for the non-pneumatic tire (see illustrated aspect ratio in embodiments of figures 3, 4, and 8), (b) Long et al suggests using a "low aspect ratio" for a non-pneumatic tire (illustrated aspect ratio in figure 2 is about 45%) and optionally (c) Japan '410 suggests using an aspect ratio of 40-95% for a non-pneumatic tire to obtain desired riding comfortability, rolling resistance and run stability.

The limitation of the number of holes being made identical to the number of tread grooves would have been obvious since (a) Haydon suggests arranging the tread grooves and holes in the non-pneumatic tire such that the number of holes is equal to the number of axial tread grooves on *one* side of the tire and (b) Chandler suggests arranging tread grooves and holes in a non-pneumatic tire such that the number of holes is equal to the number of tread grooves on *each* side of the tire (see figure 10); it being noted that the holes in Chandler's tire are blind (open at only one end) and that Haydon teaches that blind holes (holes open at only one end) are an alternative to through holes (holes open at both ends).

As to claim 14, the limitation of the base having a height of 10-30% of the tire height would have been obvious since (a) Long et al suggests using a relatively small base height (the base having an illustrated base height of about 20% and optionally (b) Japan '410 suggests using a base height of 10-50% of tire height.

As to claim 16 (parallel small size grooves between the tread grooves), it would have been obvious to add small blind grooves parallel to the axial tread grooves in the

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figure 3 tread of Haydon since (a) Haydon suggests using the non-pneumatic tire having the tread pattern of figure 3, which includes shoulder tread elements, for rough terrain, (b) Haydon suggests the use of blind groove smaller size grooves in the shoulder tread elements in the tread pattern of figure 4 and optionally (c) Binsfeld suggests adding blind grooves, which are parallel to tread grooves separating shoulder tread elements in a tread pattern generally similar to Haydon's figure 3 tread pattern, to improve traction for an off road tire. No unexpected results of preventing severe wearing for shallow groove 13 has been shown and such would not be commensurate in scope with the claims since claim 16 fails to require the small size groove to be a shallow groove 13 as shown in figures 4 and 5.

As to claim 18, it would have been obvious to provide Haydon's non-pneumatic tire with the claimed inner grooves since Long et al suggests forming grooves on the inner surface of a non-pneumatic tire to prevent slippage between the tire and the rim. claim 18 fails to require the inner grooves to act as escape portions for compressed rubber material which can absorb the unevenness in rim dimensions.

As to claims 20, 30, 32, 35, note examiner's comments regarding the above dependent claims.

3) Claims 15, 19, 21, 22, 31, 34, 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haydon (WO 96/05917) in view of Long et al (US 4226273) and Chandler et al (WO 97/18959) and optionally further in view of at least one of Hoppenheit et al (US 5579818), Japan '410 (JP 2000-254410) and

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Binsfeld (US 6298890) as applied above and further in view of Swartz (US 1237227) or Eger (US 1560551).

As to claims 15, 19, 21, 22, 31, 34, 36, and 37, it would have been obvious to one of ordinary skill in the art to provide the holes with a depth equal to approximately 25% of tire width in view of Swartz's suggestion to use shallow holes in a cushion tire (the illustrated hole depth being about 24% of tire width) or Eger's suggestion to use shallow holes in a cushion tire to dissipate heat and afford maximum cushion (the illustrated hole depth being about 24% of tire width). No unexpected results of reduced heat build up over the above applied prior art has been shown.

4) **Claims 17, 23, 25, 27, 33, 38, 40 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haydon (WO 96/05917) in view of Long et al (US 4226273) and Chandler et al (WO 97/18959) and optionally further in view of at least one of Hoppenheit et al (US 5579818), Japan '410 (JP 2000-254410) and Binsfeld (US 6298890) as applied above and further in view of Europe '250 (EP 28350) or Kremer (US 1328632).**

As to claims 17, 23, 25, 27, 33, 38, 40 and 42, it would have been obvious to provide the non-pneumatic tire of Haydon with the claimed projections for abutting the rim in order to improve support of the tire on the rim in view of Europe '350's teaching to shape the sidewalls of a cushion tire such that protrusions rest on rim flanges (figure 1) or Kremer's teaching to shape the sidewalls of a cushion tire such that protrusions rest on rim flanges (figure 1). No unexpected results of increasing fitting force have been shown.

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5) **Claims 24, 26, 28, 29, 39, 41, 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haydon (WO 96/05917) in view of Long et al (US 4226273) and Chandler et al (WO 97/18959) and further in view of Europe '250 (EP 28350) or Kremer (US 1328632) and optionally further in view of at least one of Hoppenheit et al (US 5579818), Japan '410 (JP 2000-254410) and Binsfeld (US 6298890) as applied above and further in view of Swartz (US 1237227) or Eger (US 1560551).**

As to claims 24, 26, 28, 29, 39, 41, 32 and 44, it would have been obvious to one of ordinary skill in the art to provide the holes with a depth equal to approximately 25% of tire width in view of Swartz's suggestion to use shallow holes in a cushion tire (the illustrated hole depth being about 24% of tire width) or Egar's suggestion to use shallow holes in a cushion tire to dissipate heat and afford maximum cushion (the illustrated hole depth being about 24% of tire width).

Remarks

6) Applicant's arguments with respect to claims 13-44 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 6-5-03 have been fully considered but they are not persuasive.

7) No claim is allowed.

8) Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9) Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven D. Maki whose telephone number is 703-308-2068. The examiner can normally be reached on Mon. - Fri. 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Steven D. Maki
August 24, 2003


STEVEN D. MAKI
PRIMARY EXAMINER
~~GROUP 1300~~
Av 1733 8-24-03